

M.H.

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year)
19 January 2000 (19.01.00)

International application No.
PCT/US99/11428

Applicant's or agent's file reference
AA315X/KL

International filing date (day/month/year)
24 May 1999 (24.05.99)

Priority date (day/month/year)
28 May 1998 (28.05.98)

Applicant

ASHTON, Gregory et al

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
29 November 1999 (29.11.99)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
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Authorized officer

Nestor Santesso

Telephone No.: (41-22) 338.83.38

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference AA315X/KL	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 99/ 11428	International filing date (day/month/year) 24/05/1999	(Earliest) Priority Date (day/month/year) 28/05/1998
Applicant THE PROCTER & GAMBLE COMPANY et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

DISPOSABLE ABSORBANT ARTICLE

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No.

T/US 99/11428

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61F13/15

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 547 497 A (KIMBERLY CLARK CO) 23 June 1993 (1993-06-23) column 8, line 2 -column 9, line 39; figures	1,5
A	GB 2 253 131 A (KAO CORP) 2 September 1992 (1992-09-02) page 9, line 7 - line 29; figures	1,5,7
A	WO 94 28841 A (PROCTER & GAMBLE) 22 December 1994 (1994-12-22) page 6, line 21 - line 27; figure 9 page 13, line 17 - line 20 page 15, line 3 - line 8 page 61, line 10 - line 32 page 64, line 28 -page 65, line 14	1,4,5,8

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
"&" document member of the same patent family

Date of the actual completion of the international search

28 October 1999

Date of mailing of the international search report

04/11/1999

Name and mailing address of the ISA

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Authorized officer

Mirza, A

INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 18421 A (CHAN JOHN GEOFFREY ;SCHMITZ CHRISTOPH JOHANN (DE); PROCTER & GAMBL) 7 May 1998 (1998-05-07) page 9, line 9 - line 19 page 18, line 22 -page 22, line 28; claims 1-12; figures 1-5 ----	1,4-9
P,X	WO 99 13813 A (PARAGON TRADE BRANDS) 25 March 1999 (1999-03-25) claims; figures ----	1,5,6
X	WO 97 30671 A (PROCTER & GAMBLE) 28 August 1997 (1997-08-28) page 18, line 14 -page 19, line 25 page 20, line 17 -page 21, line 17; figures 1,12-14 ----	11-16
A	US 4 883 549 A (FROST JOHNATHAN E ET AL) 28 November 1989 (1989-11-28) column 6, line 44 -column 7, line 27; figures 2-4; table 6 ----	11-16
A	WO 97 36566 A (PROCTER & GAMBLE) 9 October 1997 (1997-10-09) claim 1 ----	17,18
X	WO 96 31179 A (PROCTER & GAMBLE ;ASHTON GREGORY (CA)) 10 October 1996 (1996-10-10) the whole document ----	21-25
A	WO 96 18367 A (PROCTER & GAMBLE) 20 June 1996 (1996-06-20) page 13, line 35 -page 14, line 9; claims page 21, line 27 -page 22, line 28 ----	21-29
A	EP 0 386 816 A (PROCTER & GAMBLE) 12 September 1990 (1990-09-12) column 9, line 25 - line 53; claims 1-6; figures -----	21-25, 28,29

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

/US 99/11428

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0547497	A	23-06-1993	AU 658245 B	06-04-1995
			AU 2987292 A	24-06-1993
			BR 9204605 A	22-06-1993
			CA 2072675 A	30-12-1993
			DE 69218560 D	30-04-1997
			DE 69218560 T	07-08-1997
			EP 0743052 A	20-11-1996
			ES 2098430 T	01-05-1997
			HK 1006392 A	26-02-1999
			JP 2533273 B	11-09-1996
			JP 5247701 A	24-09-1993
			MX 9206767 A	01-06-1993
			ZA 9208906 A	13-05-1993

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			JP 5076565 A	30-03-1993
			SG 9590702 A	01-09-1995

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			AT 175340 T	15-01-1999
			AU 6956294 A	03-01-1995
			CA 2163735 A	22-12-1994
			DE 69415805 D	18-02-1999
			DE 69415805 T	05-08-1999
			EP 0701424 A	20-03-1996
			ES 2126119 T	16-03-1999
			JP 8510941 T	19-11-1996

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			AU 5240598 A	22-05-1998
			AU 3221597 A	22-05-1998
			CA 2219718 A	30-04-1998
			WO 9818419 A	07-05-1998

WO 9913813	A	25-03-1999	NONE	

WO 9730671	A	28-08-1997	US 5685874 A	11-11-1997
			AU 2129497 A	10-09-1997
			CN 1216458 A	12-05-1999
			CZ 9802641 A	17-03-1999
			EP 0886509 A	30-12-1998
			HU 9901017 A	28-07-1999
			JP 11504553 T	27-04-1999
			NO 983836 A	20-10-1998
			US 5931827 A	03-08-1999

US 4883549	A	28-11-1989	AT 141214 T	15-08-1996
			AU 640117 B	19-08-1993
			AU 4759890 A	26-06-1990
			DE 68926957 D	19-09-1996
			DE 68926957 T	03-04-1997
			EP 0397848 A	22-11-1990
			ES 2092503 T	01-12-1996
			MX 165716 B	01-12-1992
			WO 9006228 A	14-06-1990

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			AU 2334797 A	22-10-1997

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

/US 99/11428

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9736566	A		CA 2251694 A JP 11507286 T US 5957908 A	09-10-1997 29-06-1999 28-09-1999
WO 9631179	A	10-10-1996	US 5569234 A AU 5325396 A AU 5382996 A BR 9604800 A CA 2216145 A CA 2216640 A CN 1183714 A CZ 9703126 A EP 0902674 A EP 0818980 A HU 9801605 A JP 2904934 B JP 10510335 T JP 10505778 T NO 974541 A WO 9631178 A US 5836932 A US 5769838 A ZA 9602691 A	29-10-1996 23-10-1996 23-10-1996 09-06-1998 10-10-1996 10-10-1996 03-06-1998 18-03-1998 24-03-1999 21-01-1998 28-10-1998 14-06-1999 06-10-1998 09-06-1998 03-12-1997 10-10-1996 17-11-1998 23-06-1998 25-07-1996
WO 9618367	A	20-06-1996	AU 4509296 A BR 9510027 A CA 2205924 A CN 1216913 A CZ 9701734 A EP 0797423 A FI 972525 A HU 77841 A JP 10510733 T NO 972741 A TR 960560 A US 5690627 A ZA 9510711 A	03-07-1996 02-06-1998 20-06-1996 19-05-1999 14-01-1998 01-10-1997 13-06-1997 28-08-1998 20-10-1998 18-08-1997 21-07-1996 25-11-1997 02-07-1996
EP 0386816	A	12-09-1990	US 5037416 A AT 104134 T AU 645006 B AU 5079990 A CA 1335229 A CN 1045347 A, B DE 69008008 D DE 69008008 T DK 386816 T EG 19139 A ES 2052156 T FI 96093 B HK 94896 A IE 63626 B JP 3202056 A MX 166876 B NZ 232821 A PT 93372 A TR 24073 A	06-08-1991 15-04-1994 06-01-1994 20-09-1990 18-04-1995 19-09-1990 19-05-1994 29-09-1994 16-05-1994 29-09-1994 01-07-1994 31-01-1996 07-06-1996 17-05-1995 03-09-1991 10-02-1993 26-08-1993 07-11-1990 01-03-1991

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 10 AUG 2000

WIPO PCT

Applicant's or agent's file reference AA315X/KL	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/11428	International filing date (day/month/year) 24/05/1999	Priority date (day/month/year) 28/05/1998
International Patent Classification (IPC) or national classification and IPC A61F13/15		
Applicant THE PROCTER & GAMBLE COMPANY et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 9 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 29/11/1999	Date of completion of this report 08.08.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer De Crignis, G Telephone No. +49 89 2399 2332 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/11428

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-27,31-51	as originally filed		
28-30	as received on	24/07/2000 with letter of	19/07/2000

Claims, No.:

13-29	as originally filed		
1-12	as received on	24/07/2000 with letter of	19/07/2000

Drawings, sheets:

1/22-22/22	as originally filed
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2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.

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EXAMINATION REPORT**

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- ☐ paid additional fees under protest.
- ☒ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
- ☒ not complied with for the following reasons:
- see separate sheet**
4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:
- ☐ all parts.
- ☒ the parts relating to claims Nos. 1 - 10.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims 1 - 10
	No:	Claims
Inventive step (IS)	Yes:	Claims
	No:	Claims 1 - 10
Industrial applicability (IA)	Yes:	Claims 1 - 10
	No:	Claims

2. Citations and explanations

see separate sheet

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VI. Certain documents cited

1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Concerning Section I:

The amendments in the description are not considered to be allowable.

On page 29 lines 9 to 11 the definition of prestrained entire length is given. According to this definition it shall refer to the entire length of an elastic material under a condition where **a part of** or the entire length of the elastic material is prestrained in the lateral direction. However, by this definition only a part of the length of the elastic material can be prestrained. Therefore, it is not possible to change in the other text "the entire unstrained length" by the "entirety" as done on pages 28 and 29. Therefore, all these amendments would extend over the content as filed.

Claims 2, 3 and 6 are amended and no basis for the amended wording has been found in the application as filed. Therefore, according to Rule 70 (c) the report is established as if such amendment had not been made.

Concerning Section IV

Lack of unity of invention

There are three groups of inventions. The separate groups of invention are:

- 1) Claims 1 to 10 refer to a disposable garment comprising a chassis, a waist elastomeric material, a side elastomeric material and seams.
- 2) Claims 11 to 20 refer to a disposable garment comprising a chassis, a waist elastomeric material, a side elastomeric material and seams. The characterising part is a certain extension range, a specified modulus of extensibility and a certain force necessary to obtain a certain extension.
- 3) Claims 21 to 29 refer to a disposable garment where reference is made to a zone of extensibility and a skin contact pressure pressing on the skin of a standard mannequin.

Since the applicant chose neither to restrict the claims nor to indicate on which basis the application should further proceed, claims 1 to 10 have been chosen as the group to be examined here.

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EXAMINATION REPORT - SEPARATE SHEET**

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Concerning Section V:

The present application does not satisfy the criterion set forth in Article 33(3) PCT because the subject-matter of Claims 1 to 10 does not involve an inventive step (Rule 65(1)(2) PCT).

Document EP-A-0,547,497 which is considered to represent the closest prior art discloses with respect to claim 1

a disposable garment having a front region, a back region, a crotch region between the front region and the back region (title, figure 1), the disposable garment comprising:
a chassis having a topsheet (inner surface),
a backsheet joined with the topsheet (outer surface),
and an absorbent core interposed between the topsheet and the backsheet (an absorbent medium on the outer cover, column 2 line 50/51),
the chassis having a central panel having a waist edge and side edges (figures 4/5),
an ear panel having a waist edge (figures 4/5),
and a waistband panel in the front region and the back region (figures 4/5)
wherein the ear panel extends laterally outwardly from each side edge of the central panel (figures 4/5),
and the waistband panel extends longitudinally outwardly from the waist edge of the central panel and the waist edge of the ear panel (figures 8/9),
a waist elastomeric material joined to and extending continuously along the waistband panels in the front region and the back region so as to form a continuous extensible waistband in the front region and the back region (column 8 line 2 - 22),
a side elastomeric material joined to the ear panel so as to form extensible ears (column 9 line 33 - 39),
wherein the side elastomeric material and the waist elastomeric material are separate elements (figures 4/5)
and seams joining each ear panel to a corresponding portion in the opposite region so as to form two leg openings and a waist opening such that the extensible waistbands form a continuous extensible waist feature (figure 1).

Document EP-A-0,547,497 does not disclose the following feature:

"the side elastomeric material and the waist elastomeric material are disposed so as

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not to overlap to each other².

The object of the application can be seen in avoiding undue skin pressure.

The separation of the elastomeric material, therefore, appears to be an appropriate means which is at the disposition of the skilled person.

Hence, the subject-matter of claim 1 does not involve an inventive step.

Dependent Claims 2 to 10 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step for the following reasons:

Claims 2, 3 and 6 are not clear, see Section VIII.

Claim 4 refers to a "zero strain" stretch laminate. This is well-known in the art.

Claim 5 refers to two separate elements of the elastomeric material and this is well-known in the art.

Claim 7 refers to a bicomponent backsheet. Such backsheets are well-known in the art.

Claims 8 and 9 refer to the fact that the waistband and the ear can comprise portions of the outer cover and other elastomeric material. This is the usual design which is well-known in the art.

Claim 10 refers to the position of the waist elastomeric material. This is a matter of choice for the designer of the article and is not correlated to any inventive skill.

Concerning Section VI

Although document WO-A-99/13813 does not constitute prior art within the meaning of Rule 64.1 (b) PCT, it appears to disclose all the features of claims 1, 5 and 6.

No check has been made as to whether the priority of this prior application has been validly claimed.

From WO-A-99/13813 it is known to use separate elastic strands for the waist region.

Concerning Section VII:

To meet the requirements of Rule 5.1(a)(ii) PCT, the document D1 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

The independent claim should be drafted in the two-part form.

Reference signs in parentheses should be inserted in the claims to increase their intelligibility, Rule 6.2(b) PCT. This applies to both the preamble and characterising portion.

The European Patent Application number on page 31, 34 should be changed to the publication number.

All parts of the description and the figures not relating to claims 1 to 10 should be deleted.

Concerning Section VIII

The application does not meet the requirements of Article 6 PCT because Claims 3 and 6 are not clear.

The term "wherein the waistband panel has an original length before the waist elastomeric material is joined thereto, wherein the continuous extensible waistband is rendered extensible such that the continuous extensible waistband extends beyond the original length of the waistband panel" used in Claim 2 is vague and indefinite and, as such, renders the scope of the claim unclear; accordingly, the claim requires amendment to remove this defect (Article 6 PCT).

It is not clear what should be an original length and what is then the final length and when is it achieved. It is not clear whether the waistband is rendered extensible after the joining or before and how it is rendered extensible. It is not clear to which extent it extends beyond the original length and what is the original length.

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Claim 3 refers to "at least a part of the waist elastomeric material is prestrained before joined to the waistband panel". It is not clear what is with the rest of the waist elastomeric material and whether it is not prestrained before joined to the waistband panel. It is not clear whether the material is joined to the extended waistband panel or not.

Claim 6 refers to a elastomeric material "disposed so as to form a composite side elastomeric network". It is not clear what is meant by this term "composite side elastomeric network" and it is not clear what is meant by "disposed so as to form". Either it is formed in a certain way or it is not.

Replaced by sheet 28

added associated with the absorbent core 25, the additional layer may form a part of the continuous extensible waistband 57 and 59. In a preferred embodiment shown in Fig. 7, the side portion 57B of the continuous extensible waistband 57 comprises a lamination of an extended portion 72 of the inner barrier cuff 54, the end extended portion 23A of the nonwoven outer cover 23, and a side part of the waist elastic member 80. The central portion 57A of the extensible waistband 57 comprises a lamination of the end extended portion 24A of the topsheet 24, the end extended portion 23A of the nonwoven outer cover 23, and a center part of the waist elastic member 80 (although Fig. 7 depicts only the structures in the front region 26, preferably the structures in the back region 28 are the same or similar to those in the front region 26). However, in the embodiment, the inner barrier film 68 does not extend into the continuous extensible waistband 57. Alternatively, the inner barrier cuff 54, the topsheet 24 and/or the nonwoven outer cover 23 may not extend into the continuous extensible waistband 57. The extended portion 72 of the inner barrier cuff 54 also may not extend into the continuous extensible waistband 57. If both of the topsheet 24 and the nonwoven outer cover 23 do not extend into the continuous extensible waistband 57, the continuous extensible waistband 57 may comprise an extended portion of the inner barrier film 68 and the waist elastic member 80.

The waist elastic member 80 is superposed inside the innermost surface (body-facing surface) of the pull-on diaper 20. The waist elastic member 80 may be operatively joined to the extended portions 72 of the inner barrier cuffs 54, the end extended portion 23A of the nonwoven outer cover 23, and the end extended portion 24A of the topsheet 24. The waist elastic member 80 can be operatively joined thereto, by using either an intermittent bonding configuration or a substantially continuous bonding configuration. In a particularly preferred embodiment, the adhesive selected is applied in a spiral pattern (such as is shown in U.S. Patent No. 3,911,173 (Sprague, Jr.) and U.S. Patent No. 4,842,666 (Werenicz)) at a basis weight of about 0.116 g/m². The spirals have a width of about 1.9 cm (0.75 in) and either are positioned just next to each other or overlap slightly (less than 2 mm). The adhesive is preferably an adhesive such as is available from Findley Adhesives under the designation H2120. Alternatively, the waist elastic member and any other components of the stretch laminates may be intermittently or continuously bonded to one another using heat bonding, pressure bonding, ultrasonic bonding, dynamic mechanical bonding, or any other method as is known in the art.

The entire unstrained length of the waist elastic member 80 is preferably prestrained in the lateral direction before operatively joined to the extended portions 72 of the left and right inner barrier cuffs 54, the end extended portion 24A of the topsheet 24, and the end extended portion 23A of the nonwoven outer cover 23. The entire unstrained length of the

waist elastic member 80 is prestrained in the lateral direction up to at least the original length of the waistband panel 6 and 7 of the chassis 41. The entire unstrained length of the waist elastic member 80 may be further prestrained to extend into a part of the seam panel 12 and 13. In the embodiment, the waistband panel 6 and 7 of the chassis 41 comprises the extended portions 72 of the left and right inner barrier cuffs 54, the end extended portion 24A of the topsheet 24, and the end extended portion 23A of the nonwoven outer cover 23. Herein "original length" refers to the length of a single material or a composite material before being rendered elastically extensible and before being permanently mechanically stretched. Herein "prestrained entire length" refers to the entire length of an elastic material under a condition where a part of or the entire length of the elastic material is prestrained in the lateral direction. In the embodiment, the original length of the waistband panel 6 and 7 is generally the same as the combined length of the extended portions 72 of the left and right inner barrier cuffs 54 and the end extended portion 24A of the topsheet 24 under an assembled configuration before the waist elastic member 80 is joined thereto. The original length of the waistband panel 6 and 7 is also generally the same as the length of the end extended portion 23A of the nonwoven outer cover 23 before the waist elastic member 80 is joined thereto. The waist elastic member 80 is preferably prestrained in range of from 20 to 100 % of its unstrained (i.e. untensioned) length. More preferably, the waist elastic member 80 may be prestrained in range of from 40 to 80 %. After the prestrained waist elastic member 80 is joined, the waist elastic member 80 is then allowed to return to their substantially untensioned condition with the other components, such as the extended portions 72 of the inner barrier cuffs 54, the end extended portion 24A of the topsheet 24, and the end extended portion 23A of the nonwoven outer cover 23, joined to the waist elastic member 80. Thus the continuous extensible waistband 57 and 59 is formed that is extensible, from the untensioned length of the waist elastic member 80 at least to the original length of the waistband panel 6 and 7 of the chassis 41.

Alternatively, only a part of the waist elastic member 80 may be prestrained before operatively joined to the extended portion of at least one of the plurality of layers, such that the prestrained entire length of the waist elastic member 80 in a condition where a part of the waist elastic member 80 is prestrained is generally the same as the original length of the waistband panel 6 and 7 of the chassis 41. Preferably, only a part of the waist elastic material 80, which extends along the lateral width X (shown in Fig. 3) of the absorbent core 25 adjacent to the waist elastic material 80, may be prestrained.

Examples of extensible materials are disclosed in U.S. Patent No. 2,075,189 issued to Galligan on March 30, 1937; U.S. Patent No. 3,025,199 issued to Harwood on March 13, 1962; U.S. Patent Nos. 4,107,364 and 4,209,563 issued to Sisson on August 15, 1978

and June 24, 1980, respectively; U.S. Patent No. 4,834,741 issued to Sabee on May 30, 1989; and U.S. Patent No. 5,151,092 issued to Buell et al., on September 29, 1992.

The continuous extensible waistband 57 and 59 is formed to be extensible, from the untensioned length of the waist elastic member 80 at least up to the original length of the waistband panel 6 and 7 of the chassis 41. However, the waist elastic member 80 is usually joined to the extended portion of at least one of the plurality of layers disposed associated with the absorbent core 25, such as the topsheet 24 and the backsheet 22 which are substantially non-elastic. Therefore, the waist elastic member 80 can extend only between the untensioned length of the waist elastic member 80 and the original length of the waistband panel 6 and 7 of the chassis 41, and can not extend beyond the original length of the waistband panel 6 and 7 of the chassis 41. This restricts the upper limit of the extension range of the continuous extensible waistband 57 and 59 (i.e., continuous extensible waist feature 60), even if the waist elastomeric material 80 itself is capable of extending beyond the original length of the waistband panel 6 and 7 of the chassis 41 or the prestrained entire length of the waist elastomeric material 80. This restriction in the upper limit of the extension range does not allow enough extensibility for the continuous extensible waistband 57 and 59. Therefore, when the pull-on diaper 20 is extended for application to the wearer, the pull-on diaper 20 may not provide enough size of waist opening or the applicator must apply much high force to the pull-on diaper 20 to seek extensibility from other extensible materials in the pull-on diaper 20 to obtain enough size of waist opening. This may cause difficulty in applying the pull-on diaper to the wearer.

Therefore, the continuous extensible waistband 57 and 59 is rendered elastically extensible to provide greater range of extensibility (i.e., extension range) beyond the original length of the waistband panel 6 and 7 of the chassis 41 or the prestrained entire length of the waist elastic member 80. Namely, after the waist elastic member 80 is operatively joined under a prestrained (tensioned) condition to the inner barrier cuff 54, the topsheet 24 and the nonwoven outer cover 23 and before returning to their substantially untensioned condition, at least a portion of, preferably the entire of the resultant composite stretch laminate (i.e., continuous extensible waistband 57 and 59) is then subjected to mechanical stretching sufficient to permanently elongate the non-elastic components which are the extended portions 72 of the left and right inner barrier cuffs 54, the end extended portion 24A of the topsheet 24, the end extended portion 23A of the nonwoven outer cover 23, and the coverstock layers (if any) constituting a part of the waist elastic member 80. The composite stretch laminate is then allowed to return to its substantially untensioned condition. Therefore, the waist elastic member 80 is extensible from the untensioned length beyond the original length of the waistband panel 6 and 7 of the chassis

WHAT IS CLAIMED IS:

1. A disposable garment having a front region, a back region, a crotch region between the front region and the back region, the disposable garment comprising:

a chassis having a topsheet, a backsheet joined with the topsheet, and an absorbent core interposed between the topsheet and the backsheet, the chassis having a central panel having a waist edge and side edges, an ear panel having a waist edge, and a waistband panel in the front region and the back region, wherein the ear panel extends laterally outwardly from each side edge of the central panel, and the waistband panel extends longitudinally outwardly from the waist edge of the central panel and the waist edge of the ear panel,

a waist elastomeric material joined to and extending continuously along the waistband panels in the front region and the back region so as to form a continuous extensible waistband in the front region and the back region,

a side elastomeric material joined to the ear panel so as to form extensible ears, wherein the side elastomeric material and the waist elastomeric material are separate elements and are disposed so as not to overlap to each other, and

seams joining each ear panel to a corresponding portion in the opposite region so as to form two leg openings and a waist opening such that the extensible waistbands form a continuous extensible waist feature.

2. The disposable garment of Claim 1 wherein the waistband panel has an original length before the waist elastomeric material is joined thereto, wherein the continuous extensible waistband is rendered extensible such that the continuous extensible waistband extends beyond the original length of the waistband panel.

3. The disposable garment of Claim 2 wherein at least a part of the waist elastomeric material is prestrained before joined to the waistband panel.

4. The disposable garment of Claim 1 wherein the extensible ear is formed from a "zero strain" stretch laminate.

5. The disposable garment of Claim 1 wherein the waist elastomeric materials comprise two separate elements, one of which is joined to the waistband panel in the front region, the other of which is joined to the waistband panel in the back region, wherein the two elements are connected to each other at the seams.

6. The disposable garment of Claim 1 wherein the waist elastomeric material and the side elastomeric material are disposed so as to form a composite side elastomeric network extending between the waist opening and the leg openings.
7. The disposable garment of Claim 1 wherein the backsheet comprises an inner barrier film and a nonwoven outer cover, and wherein the nonwoven outer cover is superposed outside the inner barrier film.
8. The disposable garment of Claim 7 wherein the extensible waistband comprises an extended portion of the outer cover and the waist elastomeric material.
9. The disposable garment of Claim 7 wherein the extensible ear comprises an extended portion of the outer cover and the side elastomeric material.
10. The disposable garment of Claim 1 wherein the waist elastomeric material is superposed inside an innermost surface of the garment.
11. A disposable garment having a front region, a back region and a crotch region between the front region and the back region, the disposable garment comprising: a chassis, a waist elastomeric material, a side elastomeric material, and seams joining parts of the disposable garment in the front region to parts of the disposable garment in the back region so as to form a waist opening and leg openings, wherein
the garment has a continuous belt zone which is formed by at least the waist elastomeric material and the side elastomeric material,
the continuous belt zone is extensible in an extension range up to an extension of at least about 125 %, the continuous belt zone has a modulus of extensibility in the extension range,
the modulus of extensibility at the extension of 125 % is not greater than about 150 g/%extension, and
the force to obtain the extension of 125 % is not greater than 5,000 g.
12. The disposable garment of Claim 11 wherein the modulus of extensibility in the extension range up to the extension of about 125 % is not greater than about 150 g/%extension.

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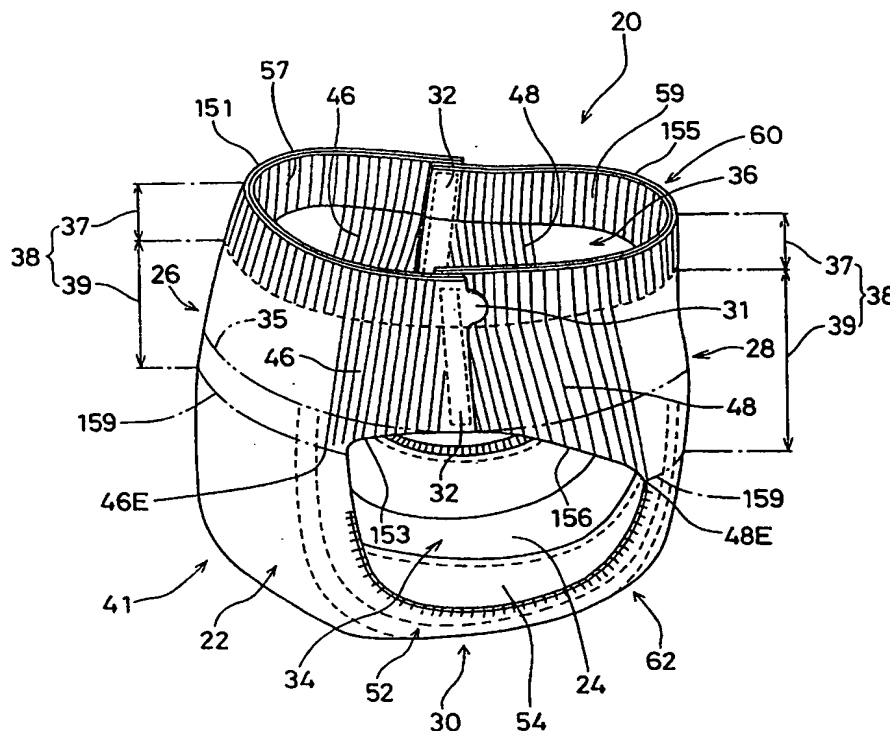
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(54) Title: DISPOSABLE ABSORBANT ARTICLE

(57) Abstract

A disposable garment having a side elastomeric material and a waist elastomeric material is disclosed. The disposable garment has a front region, a back region, a crotch region between the front region and the back region. The disposable garment comprises a chassis, a waist elastomeric material, a side elastomeric material, and seams. The chassis has a topsheet, a backsheet joined with the topsheet, and an absorbent core interposed between the topsheet and the backsheet. The chassis has a central panel having a waist edge and side edges, an ear panel having a waist edge, and a waistband panel in the front region and the back region. The ear panel extends laterally outwardly from each side edge of the central panel. The waistband panel extends longitudinally outwardly from the waist edge of the central panel and the waist edge of the ear panel. The waist elastomeric material is joined to and extending continuously along the waistband panels in the front region and the back region so as to form a continuous extensible waistband in the front region and the back region. The side elastomeric material is joined to the ear panel so as to form extensible ears.

The side elastomeric material and the waist elastomeric material are separate elements and are disposed so as not to overlap to each other. The seams join each ear panel to a corresponding portion in the ear panel so as to form two leg openings and a waist opening such that the extensible waistbands form a continuous extensible waist feature.



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B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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☒ Further documents are listed in the continuation of box C.

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International Application No.
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